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ABSTRACT

A study examined the effects of commercially produced phonics software upon the phonemic awareness of students studying reading with the Herman Method for teaching reading. Participants were 13 middle school students in a self-contained or comprehensive developmental special education classroom. The control group of six students did not use the software, while the treatment group of seven students did. Pretests and posttests were given to each student. Every student received 25 minutes of reading instruction along with 25 minutes of handwriting instruction every day. Every student also received 25 minutes of computer time each day, with the treatment group using the interactive software program "Curious George Learns Phonics" three times a week. All of the students benefited from receiving instruction in the Herman Method, as shown by an increase in scores on each of the subtests. The treatment group did not show a significant difference from the control group when statistical comparisons were made. All students, however, should have access to commercially produced phonics software within the classroom; students who used the software appeared to have less difficulty with rhyming words than those students who did not use the software. (Contains 6 tables of data and 19 references. Appendixes contain software requirements and charts of mean scores.) (NKA)

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CURIOUS GEORGE MEETS HERMAN:

The Effects of Commercially Produced Phonics Software on Phonemic Awareness

A Research Project
Presented to
The Department of Teacher Education
of Johnson Bible College

In Partial Fulfillment
of the Requirement for the Degree
Master of Arts in
Educational Technology and Bible

By
Lynne Michele Bowman
May 1999

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L. M. Bowman

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Chapter 1

INTRODUCTION

Significance of the Problem

Many learning disabled or functionally delayed students enter middle school (grades 6 - 8) with depressed reading levels compared to the average student. Due to their low reading levels, these students are often not able to successfully be included in regular education academic classes. They may have difficulty in non-academic classes such as physical education, music, band and even art when reading is required to complete activities. Not only do these students have difficulty in school; they may have problems upon leaving school.

> Only 52 percent of students identified with learning disabilities will actually graduate with a high school diploma, ...62 percent of learning disabled students are unemployed one year after graduation ...up to 60 % of adolescents who receive treatment for substance abuse disorder have unremeidated [sic] learning disabilities (Herrera, pp.83-4).

In order for students to avoid these potential problems, they need an intensive program that will increase their reading skills, including phonemic awareness, to a level equivalent to that of their age appropriate peers.

Statement of the Problem

One reading program in use in several special education classes in Knox County Schools, Knoxville, Tennessee is the Herman Method for Reversing Reading Failure, hereafter referred to as the Herman Method. The Herman Method "... is a multisensory remedial reading curriculum that evolved from the Orton/Gillingham philosophy and

includes the instructional methods developed by Renee Herman as she worked with dyslexic studentsin a public school from 1964 to 1973" (Herman, 1995). The Herman Method has supplemental computer software that must be purchased separately from the program kit. One problem with the software is its availability only for Apple IIe and Apple GS computers that are not commonly found in most classrooms today due to their age and the limited availability of replacement parts. There are many pieces of commercially produced software that focus on phonics and developing phonemic awareness skills such as Curious George® Learns Phonics by Houghton Mifflin Interactive. This software is widely available on both PC and Mac platforms on a hybrid CD-ROM. Very little research has been done regarding commercially produced phonics software and its effects upon phonemic awareness skills of learning disabled students. The same can be said about the Herman Method for teaching reading. This study will combine research upon both of those subjects, more specifically upon the effects of phonics software upon the phonemic awareness of students participating in the Herman Method.

Definition of Terms

Learning Disabled For the purpose of this study and according to federal guidelines, learning disabilities are defined as:

> "Specific learning disability" means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not apply to children who have learning problems that are

> primarily the result of visual, hearing, or motor disabilities of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage (Federal Register, 1992 §300.07) (Herman, 1995).

Each state has the freedom to modify this definition. Tennessee's definition of learning disability follows the definition from the American Psychiatric Association for Learning Disorders. The American Psychiatric Association recognizes several learning disorders including those in Reading, Mathematics, Written Expression and Learning Disorders Not Otherwise Specified. The diagnostic criteria for Reading Disorder are:

> A. Reading achievement, as measured by individually administered standardized tests of reading accuracy or comprehension, is substantially below that expected given the person's chronological age, measured intelligence, and age-appropriate education.
> B. The disturbance in Criterion A significantly interferes with academic achievement or activities of daily living that require reading skills.
> C. If a sensory deficit is present, the reading difficulties are in excess of those usually associated with it (American Psychiatric Association, p. 50).

Functionally Delayed In this study, the Tennessee definition of functional delay is used, the students classified in this group include children ...

> experiencing developmental delays, as defined by the State and as measured by appropriate diagnostic instruments and procedures, in one or more of the following areas: physical development, cognitive development, communication development, social or emotional development, or adaptive development; and who by reason thereof, needs special education and related services (Joseph Fisher, personal communication, January 30, 1998).

Phonemic Awareness The term phonemic awareness includes ...

> a range of higher level metacognitive understandings of word boundaries within spoken sentences, of syllable boundaries in spoken words, and of how to isolate phonemes and establish their relative locations within syllables or short words. This last step, the isolation of phonemes is known as phonemic awareness (Clark, p. 75).

There are many terms for phonemic awareness that will not be used in this study.

Limitations of the Study

This study will be done in a self-contained or comprehensive developmental (CDC) special education classroom. There are fifteen students in the class, which is also taught full time by the researcher. Generalizations regarding the outcome of this study will be difficult to make due to a small sample size.

Null Hypotheses

All of the following hypotheses will be tested using the Brigance® Diagnostic Comprehensive Inventory of Basic Skills.

1. Students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software will have no significant increase in auditory discrimination over students receiving only instruction with the Herman Method at the .05 level of significance.

2. Students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software will have no significant increase in identification of initial consonants in spoken words over students receiving only instruction with the Herman Method at the .05 level of significance.

3. Students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software will have no significant increase in pronunciation of written initial consonants over students receiving only instruction with the Herman Method at the .05 level of significance.

4. Students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software will have no significant

increase in substitution of initial consonant sounds over students receiving only instruction with the Herman Method at the .05 level of significance.

5. Students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software will have no significant increase in substitution of short vowel sounds over students receiving only instruction with the Herman Method at the .05 level of significance.

6. Students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software will have no significant increase in identification of final consonants in spoken words over students receiving only instruction with the Herman Method at the .05 level of significance.

Chapter 2

REVIEW OF RELATED LITERATURE

Phonemic Awareness

Phonemic or phonological awareness is a crucial component for success in reading. "Children who read fluently and with comprehension have acquired the ability both to read familiar words as wholes by sight and to phonologically decode unfamiliar words" (Businк, p. 200). "Children generally must learn the alphabet of sound (the phonemes) before they can be taught the alphabet of letters (the graphemes)" (Dechant, p. 45). "(B)eing able to decode words is necessary for children to become independent word learners and thus be able to develop as readers without teacher assistance" (Stahl, p. 339). Sensenbaugh states that "phonological awareness appears to play a causal role in reading acquisition .... (and) is a foundational ability underlying the learning of spelling-sound correspondences" (Sensenbaugh, p. 2). These concepts are important parts of any reading program based upon the Orton-Gillingham reading approach even though they are not specifically mentioned in the program literature. Students must be able to hear and feel each individual sound in order to produce the sound. This skill will then allow them to read the sound.

Phonemic training needs to be included in reading instruction.

> Lewkowicz (1980) listed ten tasks that have been used to teach or to test phonemic skills: (1) sound-to word matching; (2) word-to-word matching; (3) recognition of rhyme; (4) pronunciation of an isolated phoneme in a word; (5) phonemic segmentation (articulating separately all sounds in a

> word, in the correct order); (6) counting phonemes; (7) blending; (8)deletion of a phoneme from a word; (9) specifying which phoneme has been deleted; and (10) phonemic substitution (Williams, p. 242).

Many of these tasks are included in the Herman Reading Method, but some are not. Lewkowicz determined that "blending and segmentation are the basic phonemic tasks, and that it is these two tasks that belong in an instructional program" (Williams, p. 242). The Herman method heavily utilizes pronunciation of isolated phonemes in words, phonemic segmentation, and blending in the earliest portions of the program. Students must be able to blend to mastery and eventually read the word as a whole unit. At the time of the development of the Herman method, during the early 1970's, there was not a great deal of research available to show that these skills lead to reading success in learning disabled individuals, but more research has been done since that time in the area of phonemic awareness and its relationship to increased reading skills. According to Williams (1984) the findings "are persuasive in indicating that phonemic skills do enhance the acquisition of reading skill" (Williams, p. 243).

Orton-Gillingham Reading Method

A phoneme is "an individual sound unit in spoken words. The smallest unit of speech that distinguishes one utterance from another" (Clark, 1995, p. 274). Many learning disabled students have difficulty differentiating between the phonemes in spoken language and may not be able to make the sound - letter associations.

Even though current researchers often use the terms phonological awareness, phonemic awareness, phonemic knowledge and linguistic awareness interchangeably, Samuel Orton, a neurologist, did not use any of those terms when he began his research

on language disabilities in the 1920's and 1930's. Orton suggested that students with language disorders, especially in the areas of reading and spelling, should receive remedial training using a system of phonics combined with kinesthetic exercises including finger pointing, tracing of letters and handwriting (Chall, p. 169). Orton began working with Gillingham, a psychologist, while conducting the Language Research Project of the New York Neurological Institute. Gillingham developed a remedial reading program, which she called "the alphabetic method." Gillingham's method "is based upon the constant use of association of all of the following: how a letter or word looks, how it sounds, how the speech organs or the hand in writing feels when producing it" (Money, p. 138).

In more modern terms, the Orton-Gillingham method would have a bottom-up perspective on reading. The bottom-up model

> describes reading as a hierarchical procedure that moves from processing the smallest bits of graphemic information, individual letters, to ever larger chunks of information....a series of associations must be built between low level pieces of information, such as sounds and letters, before they can be interpreted and associated with specific meanings (Clark, p. 6).

Students learning to identify sounds before identifying syllables in longer words illustrate this.

The Orton-Gillingham method is quite rigorous for students and teachers. The Orton Society states that the "teaching sessions are action oriented with auditory, visual and kinesthetic elements reinforcing each other for optimal learning" (Academy of Orton-Gillingham Practitioners and Educators, 1998). In the program, letters or phonograms are introduced on cards in a specified sequence with student attention drawn to the mouth during sound production.

> The assumed rationale for multisensory remedial training has been that kinesthetic activities help to establish visual-auditory associations in learning grapheme-phoneme correspondences, as well as to establish left-to-right letter progression (Clark, p.68).

The teacher or paraprofessional in the handwriting instruction area writes the letter and explains its formation and orientation. The student traces the letter before copying it from memory. Eventually the student writes the letter from memory with their eyes averted or closed (Clark, p. 86). This method is designed for use with a small group or for individualized instruction.

The Orton-Gillingham approach and methods based upon this approach have been used for more than sixty years. Surprisingly little research has been done regarding this method. There have been many case studies done to show the method's effectiveness. "Other studies of the Orton-Gillingham approach have not included control groups" (Stahl, p. 345). Several studies report that students given the Orton-Gillingham approach made significant progress, but the progress could have related to factors other than the reading program itself.

Learning Disabilities and Reading Programs

Stabilized Learning System Program In relation to learning disabilities, "research strongly indicates that the essential areas to be remediated are primarily phonological awareness and secondarily, grapheme-phoneme conversion and phoneme-grapheme conversion" (Herrera, p. 71). In the implicit paradigm studied by Herrera, et al., activities much like those in the Herman method were used in the Stabilized Learning System Program. Herrera states that the "visuo-spatial, visual- motor side of visual language must be given its due. Development of phonetic-graphic awareness, memory and retrieval would appear to hold the best promise for reading and spelling remediation" (Herrera, p. 73). The Stabilized Learning System Program is much like the Herman

method in that it is sensorimotor in nature, the activities must relate to reading tasks, and motor activities which relate to auditory skills are integrated into the program until they are automatically produced by the students. At the end of the study, Herrera determined that…

> an implicit learning paradigm ... is more effective than an explicit approach ... in the education of learning disabled students for sight vocabulary development, fluency, writing vocabulary, familiar and unfamiliar passage reading, by inference in teaching phonological awareness, retrieval as well as grapheme-phoneme conversion and phoneme-grapheme conversion"(Herrera, p. 82).

This includes the decoding of words as well as encoding during spelling activities. The Herman method integrates spelling with sensorimotor activities once the student has learned the first five sound-letter correspondences.

The ABD's of Reading J.P. Williams developed a reading program specifically for learning disabled students, The ABD's of Reading, that teaches "both phoneme analysis and phoneme blending" (Williams, p.242). This program differs somewhat from the Herman method in its use of wooden squares instead of letter cards to form words. This program was, like the Herman method, initially used with older learning disabled students, but as a supplement to their regular classroom instruction. "Williams reported significantly greater improvement in phonemic analysis and blending skills in comparison with controls" (Clark, p. 81). Williams demonstrated that

> combining prereading oral language instruction in phonological segmentation and blending with later instruction and practice applying synthetic phonics skills produced significant word reading improvements in a large sample of young heterogeneous reading disabled children. Furthermore, Williams reported convincing evidence that the children

> made significant gains in generalized alphabetic reading skills. That is, they were better able to read groups of unfamiliar, untaught items (both real words and nonwords) than were children in a control group that had not received the same instructional program (Graves, p. 143).

Suggested Interventions Frost gives suggested interventions for working with learning disabled students. One suggestion is to "provide direct instruction in language analysis and the alphabetic code. Give explicit instruction in segmenting and blending speech sounds. Teach children to process progressively larger chunks of words (Frost, p. 4). This concept is the fundamental component of the Herman Method upon which all other components are based and is recommended as an instructional technique by Spector in Sensenbaugh (Sensenbaugh, p. 3). Frost also suggests to "teach for automaticity. As basic decoding skills are mastered, regularly expose children to decodable words so that these words become automatically accessible" (Frost, p. 4). This is another tenet of the Herman Method. Students cannot move from one level to another without proving mastery of the skill. Each skill is continually reviewed throughout the program. Frost suggests to "teach reading and spelling in conjunction. Teach children the relationship between spelling and reading and how to correctly spell the words they read" (Frost, p. 4). Not only is this a basis of the Herman Method, but it is also a part of the method proposed by Gillingham.

The Auditory Discrimination in Depth Program The Auditory Discrimination in Depth (ADD) Program developed by Lindamood and Lindamood "explicitly teaches children (and reading disabled adults) to attend to the way the mouth feels when speech sounds are made" (Busink, p. 209). "A distinctive feature of this program was its emphasis on the labeling of the articulatory movements of the mouth (e.g., /p/ is a lip-popper)" (Williams, p. 242). This is another program that is an offshoot of the Orton-Gillingham Method, but does not incorporate the integration of handwriting with the

reading method as the Herman Method does. The ADD Program does have a technology component that is lacking in most Orton-Gillingham based methods. Children use a computer program "that incorporates both mouth movements and synthesized speech. ADD training is eventually extended into reading recognition training which also has a computer-practice component" (Clark, p. 71). Some research has been done relating to the ADD program. After students had completed sixty-five hours of individual instruction in the ADD Program, they were given an assessment of alphabetic reading skills. "This group of 10 children improved from an average standard score of 77 on a measure of alphabetic reading skills to an average of 98.4 (standard score mean =100). The poorest reader in this group improved from a score of 62 to 92, which placed him in the average range" (Graves, p. 143).

The Brigance® Diagnostic Comprehensive Inventory of Basic Skills

The Brigance® Diagnostic Comprehensive Inventory of Basic Skills is a commonly used assessment tool in special education classrooms. This test is a criterion-referenced test that is most appropriate for use with elementary students and contains several assessments for reading and reading skills. "In the area of reading, there are 33 different tests organized into four sections: Word Recognition, Reading, Word Analysis, and Vocabulary" (McLoughlin, p. 369). The Brigance test is easily administered and scored. Results from several of the subtests are lists of skills that the student has mastered or has not mastered. Other results yield grade level equivalents. Each of the tests includes instructional objectives that may be used to write a student's Individualized Educational Program (IEP) each year (McLoughlin, p. 372). Very little research has been done on the Brigance® Diagnostic Comprehensive Inventory of Basic Skills due to the fact that it has only been available since 1977. Rosalind Krawiec and Gerald Spadafore completed a

study to compare the Brigance® Diagnostic Comprehensive Inventory of Basic Skills and the Wide Range Achievement Test® (WRAT). Their study found that "the Brigance Word Recognition is as valid as the WRAT for measuring reading skills" (Krawiec, p. 230).

Chapter 3

METHODS AND PROCEDURES

Experimental Method

The study involved dividing the subjects into two groups: the control group that did not use the software and the treatment group that used the software. The study was classified as a double-blind study because none of the subjects were aware of their status in relation to the experiment. The researcher was also unaware of the status of the students within the groups. The control group consisted of six students while the treatment group consisted of seven students. Overall, the students were not significantly different in their skills within their levels. Pretests and posttests were given to each student by the researcher and the results have been compared.

Subjects

The subjects involved in the study are middle school students ages 11-15 who are certified as learning disabled or functionally delayed and placed in a CDC class in Knox County. The general school population is a mixture of rural and urban students with the same mixture found in the classroom used in the study. Fourteen students from the seventh and eighth grade CDC were selected to participate in the study. One student was omitted from the study due to his placement in a homebound setting for the majority of the experiment. These students read on levels from lower first grade to upper third grade as determined by the Reading Comprehension Grade Placement Tests from the Brigance® Diagnostic Comprehensive Inventory of Basic Skills. There are five reading groups with

three students each in the classroom. The student excluded from the study is a sixth grade student from the extended resource program.

Subject Selection

The students were divided into two groups for the purpose of the study. The researcher assigned the students numbers based upon alphabetical order in the class roster. The researcher wrote each student number on a separate sheet of paper and drew seven of them from a pile at random. The teacher wrote down the student numbers as they were drawn and gave the list to the teaching assistant. The teaching assistant correlated the numbers to the student names in order to assign them to the experimental or control group. Students whose numbers were drawn were assigned to the experimental group. The teacher did not want to know which students were placed in each group so that her views of the experiment would not be skewed positively or negatively.

Pretests and Posttests

The study began in September 1998 with instruction in the reading program beginning on September 21. All students in the study were given tests in order to establish baseline scores before that date. The pretests consisted of numerous subtests from the Word Analysis portion of the Brigance® Diagnostic Inventory of Basic Skills. The Brigance® Diagnostic Inventory of Basic Skills was selected for use in this study because it is used to determine progress by students in the CDC classroom and allows the teacher to select individual student goals for the year. The assessment is easily given individually and easily scored by evaluators in the classroom. This test is widely used in Knox County Schools.

The students were given the following subtests focusing on these skills: Auditory Discrimination, Identifies Initial Consonants in Spoken Words, Pronounces Written Initial Consonants, Substitutes Initial Consonant Sounds, Substitutes Short Vowel Sounds and Identifies Final Consonants in Spoken Words. These subtests were selected because they related directly to the skills found in the first three levels of the Herman Reading Method. The students received instruction through the first three levels of the Herman Method before being given the same subtests as a posttest. The tests were given as each small group completed level three; therefore, not all students completed the experiment at the same time. The instruction took approximately six to ten weeks depending upon each group's speed in completing the reading activities.

Statistics

The mean of each group's subtests were found and compared by t-scores. There was also a comparison of individual scores on each subtest to see if there was any significant difference in t-scores.

The Herman Reading Method

Renee Herman realized that Orton, Gillingham, Fernald and Montessori all implemented a multisensory approach using as much sensory input as possible. Herman says that the multisensory or VAKT (visual, auditory, kinesthetic and tactile) approach helps the "dyslexic students compensate for their specific disabilities" (Herman, 1995). Each skill is taught in a variety of ways. "A reading skill is introduced with a chalkboard demonstration and discussion; retaught using an instructional reading filmstrip; reviewed by reading appropriate word cards, phrase lists, sentence cards and stories; and enhanced

by playing a reading game, finishing a workbook exercise or completing a computer software activity. Each skill is reinforced with kinesthetic and tactile stimuli and practiced until the response is automatic" (Herman, 1995).

In the Herman curriculum, students begin with phonetic analysis. Students learn the sounds by using a mirror to become aware of correct mouth lip and tongue positions while being exposed to the letter symbol. "Letter-sound association is strengthened with the sound-symbol correlate, 'sounds-behind-the-back.' The teacher stands behind the student and pronounces the sound of a letter. The student responds with the corresponding letter name" (Herman, 1995). Students learn not only basic reading skills, but also handwriting skills. All students practice "bimanual kinesthetic writing" while blindfolded. Students write on the board with their dominant hand, the non-dominant hand and both hands simultaneously while blindfolded. The students practice the same activities with their feet. The students write each letter on newsprint while following a metronomic beat in order to establish fluency. They eventually move to smaller paper and begin spelling activities related to the reading activities (Herman, 1973, pp. 183-244).

The Herman Reading Method is used with groups of three students with each group receiving twenty-five minutes of reading instruction with a teacher and twenty-five minutes of handwriting and spelling instruction with a teaching assistant or paraprofessional in the classroom. The program is highly structured and scripted with each teacher and teaching assistant having received three days of intensive training in order to use the program. Students are given mastery tests periodically to determine if they are ready to move to the next level in the program.

Software and Hardware

The software used in the study is Curious George® Learns Phonics that is available from Houghton Mifflin Interactive. The program is available on a hybrid Macintosh and Windows CD-ROM (See Appendix A for system requirements). The software contains six games within a circus environment focusing on sound associations and other basic reading skills. Students "can roam the Big Top at will, exploring circus attractions while learning such phonics basics as rhyming, blending, identifying consonant and vowel sounds and decoding words" (Curriculum Review, p. 14). The students may track their own progress and print out certificates at the end of each session.

All computers used by the students in this study are Windows based PCs. All of the machines have a sound card and mouse. Each of the machines has a pair of stereo headphones connected to them so that no other students will be distracted by sounds from programs. Three of the computers in the classroom are 486 computers with the Windows 3.1 operating system. Two of the 486 computers have CD-ROM drives. One of the computers is a 90-Megahertz machine with a Pentium processor using the Windows for Workgroups 3.11 operating system and has a CD-ROM drive. The machine on which the students use the Curious George® Learns Phonics software is a 233-Megahertz machine with a Pentium processor using the Windows 95 operating system with a CD-ROM drive.

Experimental Factors

The experimental factor in the study was the inclusion of commercially produced phonics software with the Herman Reading Method. Seven of the thirteen students from the study received Herman Reading instruction and used the software Curious George®

Learns Phonics. They used the software three times each week for twenty-five minutes each session. The students in the control group also had computer time. Each student in the study used the computer for twenty-five minutes during one of two fifty minute periods set aside for reading each day. Students used software to increase their keyboarding skills, math skills and other general skills. The students use software such as Paws in Typing Town, Math Blaster®, Zookeeper®, Thinkin' Things 1 and 2, and Math Workshop Deluxe. During the study, the teaching assistant made up the computer schedule and assigned activities to each student so that the researcher would not know which students were using the Curious George® Learns Phonics software. None of the students had been informed as to their status of control or treatment group. During the other twenty-five minute periods in which they did not receive direct instruction from the teacher or teaching assistant, the students were working on supplemental activities for math or another skill building activity.

Chapter 4

RESULTS

Auditory Discrimination

The Auditory Discrimination subtest contained twenty-six items. Upon comparision of pretest means, the control and treatment groups were found not significantly different. The mean of the pretest for the control group was 23, while the mean of the treatment group was 25.4286 (See Charts in Appendix B).

After treatment, the groups were compared. A t-score could not be obtained due to the mean scores being the same (See Table 1). Hypothesis 1 stated that students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software would have no significant increase in auditory discrimination over students receiving only instruction with the Herman Method at the .05 level of significance. This hypothesis was retained at the .05 level of significance.

Table 1

Auditory Discrimination Posttest

Groups	N	Mean	Mean Difference	Std. Error of Means	t-ratio	Sig. 2-tailed
Control	6	26				
			0	0	Not applicable	Not applicable *
Treatment	6	26				

*Not Significant

Identifies Initial Consonants in Spoken Words

The Identification of Initial Consonants in Spoken Words subtest contained 21 items. The pretest mean score of the control group was 19 while the mean score for the treatment group was 20.42857 (See Charts in Appendix B).

After treatment, the groups were compared by obtaining a t-score. There was no significant difference in their scores (See Table 2). Hypothesis 2 stated that students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software would have no significant increase in identification of initial consonants in spoken words over students receiving only instruction with the Herman Method at the .05 level of significance. This hypothesis was retained at the .05 level of significance.

Table 2

Identifies Initial Consonants in Spoken Words Posttest

Groups	N	Mean	Mean Difference	Std. Error of Means	t-ratio	Sig. 2-tailed
Control	6	20.8333				
			-.1667	.1667	-1.000	.363 *
Treatment	6	21				

*Not Significant

Pronounces Written Initial Consonants

The Pronunciation of Written Initial Consonants subtest contained 21 items. The groups were compared after the pretest was administered and were found not to be

significantly different. The control group mean score was 19.5 while the treatment group mean score was 17.85714 (See Charts in Appendix B).

After treatment, the groups were compared by obtaining a t-score. There was no significant difference in their scores (See Table 3). Hypothesis 3 stated that students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software would have no significant increase in pronunciation of written initial consonants over students receiving only instruction with the Herman Method at the .05 level of significance. This hypothesis was retained at the .05 level of significance.

Table 3

Produces Written Initial Consonants Posttest

Groups	N	Mean	Mean Difference	Std. Error of Means	t-ratio	Sig. 2 tailed
Control	6	20.1667				
			.3333	.3333	1.000	.363*
Treatment	6	19.8333				

* Not Significant

Substitutes Initial Consonant Sounds

The Substituting Initial Consonant Sounds subtest contained 21 items. . The groups were compared after the pretest was administered and were found not to be significantly different. The pretest mean of the control group was 18.8333 while the mean of the treatment group was 16 (See Charts in Appendix B).

After treatment, the groups were compared by obtaining a t-score. There was no

significant difference in their scores (See Table 4). Hypothesis 4 stated that students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software would have no significant increase in substitution of initial consonant sounds over students receiving only instruction with the Herman Method at the .05 level of significance. This hypothesis was retained at the .05 level of significance.

Table 4

Substitutes Initial Consonant Sounds Posttest

Groups	N	Mean	Mean Difference	Std. Error of Means	t-ratio	Sig. 2-tailed
Control	6	20.8333				
			.6667	.3333	2.000	.102*
Treatment	6	20.1667				

*Not Significant

Substitutes Short Vowel Sounds

The Substitutes Short Vowel Sounds subtest contained 5 items. The groups were compared after the pretest was administered and were found not to be significantly different. The pretest mean of the control group was 3 while the mean of the treatment group was 1.5147 (See Charts in Appendix B).

After treatment, the groups were compared by obtaining a t-score. There was no significant difference in their scores (See Table 5). Hypothesis 5 stated that Students receiving instruction with the Herman Method for Reversing Reading Failure combined with Curious George® Learns Phonics software would have no significant increase in

substitution of short vowel sounds over students receiving only instruction with the Herman Method at the .05 level of significance. This hypothesis was retained at the .05 level of significance.

Table 5

Substitutes Short Vowel Sounds Posttest

Groups	N	Mean	Mean Difference	Std. Error of Means	t-ratio	Sig. 2-tailed
Control	6	4.5				
			.1667	.3073	.542	.611*
Treatment	6	4.3333				

*Not Significant

Identifies Final Consonants in Spoken Words

The Identification of Final Consonants in Spoken Words subtests contained eighteen items. Of the eighteen items, eight digraphs were omitted from the overall subtest because they were not included in the elements taught in the first three filmstrips of the Herman Reading program. The groups were compared after the pretest was administered and were found not to be significantly different. The pretest mean of the control group was 9.6667 while the mean of the treatment group was 9.5 (See Charts in Appendix B).

After treatment, the groups were compared. A t-score could not be obtained due to the mean scores being the same (See Table 6). Hypothesis 6 stated that students receiving instruction with the Herman Method for Reversing Reading Failure combined

with Curious George® Learns Phonics software would have no significant increase in identification of final consonants in spoken words over students receiving only instruction with the Herman Method at the .05 level of significance. This hypothesis was retained at the .05 level of significance.

Table 6

Identifies Final Consonants in Spoken Words

Groups	N	Mean	Mean Difference	Std. Error of Means	t-ratio	Sig. 2-tailed
Control	6	10				
			0	0	Not applicable	Not applicable *
Treatment	6	10				

*Not Significant

Chapter 5

SUMMARY, CONCLUSION, RECOMMENDATIONS

Summary

A group of fourteen seventh and eighth grade students in a self-contained special education classroom were selected to receive instruction in the Herman Method for Reversing Reading Failure. Of those fourteen students, seven were randomly selected to receive treatment by using commercially produced phonics software to see if it would increase their awareness of phonemes. The students were given pretests before beginning the reading instruction and the same tests for posttests after completing Level 3 of the Herman Reading Method. Every student received twenty-five minutes of reading instruction along with twenty-five minutes of handwriting instruction per day. Every student also received twenty-five minutes of computer time each day with the treatment group utilizing Curious George® Learns Phonics software three times each week.

Conclusions

All of the students benefited from receiving instruction in the Herman Reading Method as shown by an increase in scores on each of the subtests. The treatment group did not show a significant difference from the control group when statistical comparisons were made. This lack of statistical significance is possibly related to the small number of students participating in the research.The researcher made observations regarding areas other than those tested by the pretests and posttests. During the pretesting of students on the Substitution of Initial Consonant Sounds subtest, many of the students had a great

deal of difficulty with rhyming words. The subtest does not require that the test administrator record the accuracy of any part of the word except the initial sound. There is an area on the record book where the test administrator may record notes regarding difficulties with rhyming words that is not subject to statistical analysis. There was a noticeable difference in the students' abilities to rhyme words during the administration of the posttest.

Recommendations

The researcher recommends that all students should have access to commercially produced phonics software within the classroom. The students that used the software appeared to have less difficulty with rhyming words than those students that did not use the software. The students were eager to use the software and enjoyed showing staff members different aspects of the games during their computer times. Upon conclusion of the study, every student was given the opportunity to use the Curious George® Learns Phonics software as well as other commercially produced phonics software.

The researcher also recommends collecting data from the same pretests and posttests each year to gather a larger sample to see if there is a significant difference in the control and treatment groups. This research may become an ongoing project within this classroom.

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APPENDICES

APPENDIX A

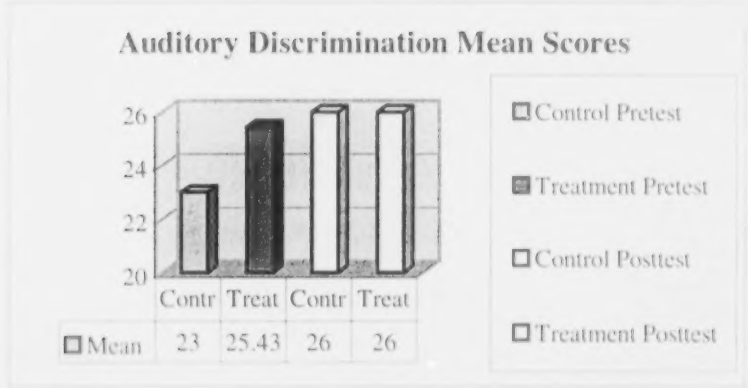
Software Requirements

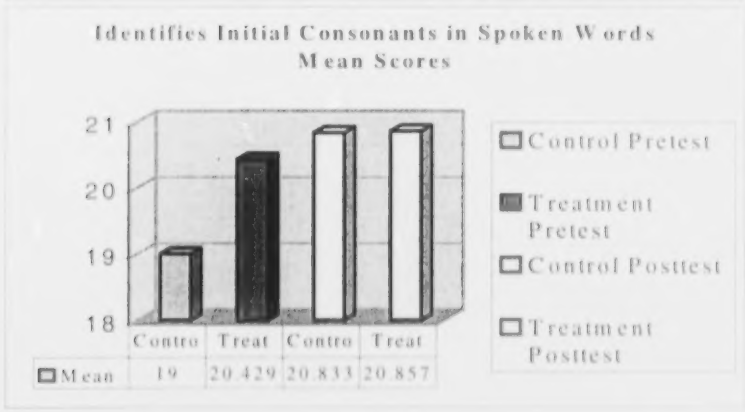
Windows based machine system requirements are that the software must be used on a 486 computer with a 100 Megahertz or higher processor. The machine must have the Windows 3.1 or higher operating system and must have at least 12 Megabytes of Random Access Memory (RAM). The machine must also have a CD-ROM drive, a 16 bit soundcard, an SVGA display or higher, a mouse and at least 10 Megabytes of free hard disk space.

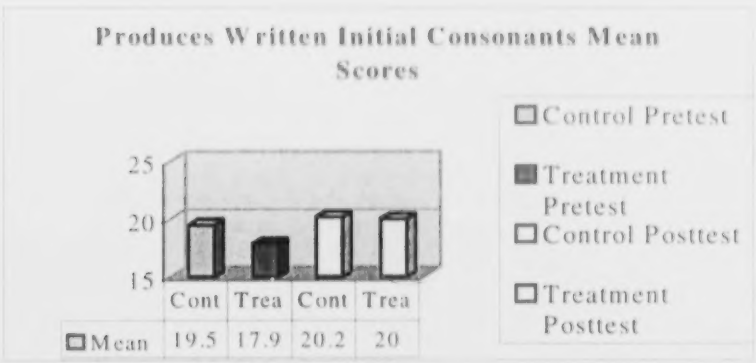
Macintosh requirements are a 68040 machine or higher using Macintosh Operating System 7.1 or higher. The machine must also have 12 Megabytes of RAM, a color display able to utilize 256 colors, a mouse and 12 Megabytes of free hard disk space (Curious George Learns Phonics).

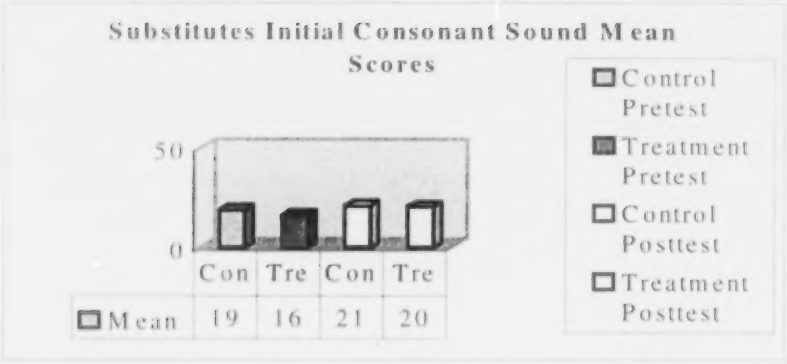
APPENDIX B

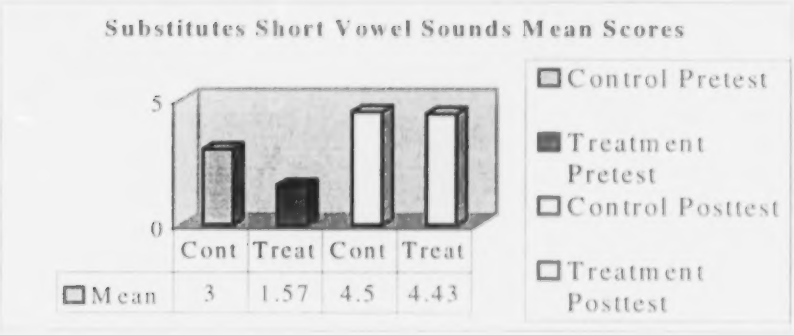
CHARTS OF MEAN SCORES

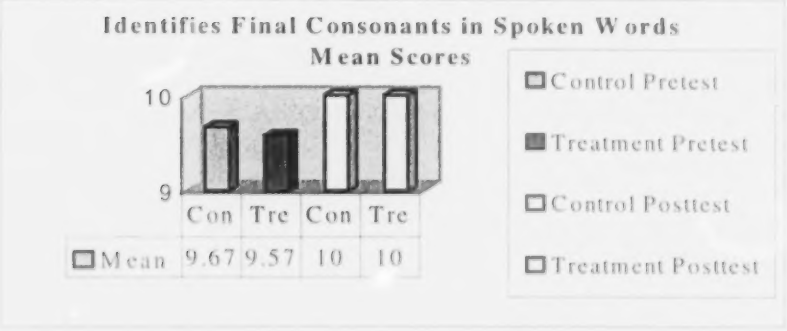







Substitutes Initial Consonant Sound Mean Scores
50
0
Con
Tre
Con
Tre
Mean
19
16
21
20
Control Pretest
Treatment Pretest
Control Posttest
Treatment Posttest


Substitutes Short Vowel Sounds Mean Scores
5
0
Cont
Treat
Cont
Treat
Mean
3
1.57
4.5
4.43
Control Pretest
Treatment Pretest
Control Posttest
Treatment Posttest


Identifies Final Consonants in Spoken Words Mean Scores
10
9
Con
Tre
Con
Tre
Mean
9.67
9.57
10
10
Control Pretest
Treatment Pretest
Control Posttest
Treatment Posttest